TITLE: SCOOTER WITH A SHOCK-ABSORBING UNIT

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a scooter, more particularly to a scooter with a shock-absorbing unit for absorbing shock resulting from operation of a power driving unit.

2. Description of the Related Art

Referring to Figure 1, a conventional scooter 1 is shown to include a footrest plate 21, a rear wheel 124, a power driving unit 11, a shock-absorbing unit 13, and a transmission unit 14.

As illustrated, the footrest plate 21 has a motor-mounting rear part 213. A rocker 12 has a front end 122 pivoted to the footrest plate 21 through a first spindle 121, and a rear end 125. The rear wheel 124 is journalled to the rear end 125 of the rocker 12 through a second spindle 123. The power driving unit 11 is mounted on the motor-mounting rear part 213 of the footrest plate 21, and has an output shaft 111. The transmission unit 14 interconnects the driving unit 11 and the rear wheel 124, and includes a first toothed wheel 141 fixed co-axially and securely on the output shaft 111, a second toothed wheel 142 mounted co-axially and securely on the spindle 121, a third toothed wheel 144 mounted co-axially and securely on the spindle 121 and spaced apart from the second

toothed wheel 142, a fourth toothed wheel 145 fixed to the rear wheel 124 for co-rotation therewith, a first transmission belt 143 trained on the first and second toothed wheels 141,142, and a second transmission belt 146 trained on the third and fourth toothed wheels 144,145. The shock-absorbing unit 13 has an upper end 131 pivoted to the motor-mounting rear part 213 of the footrest plate 21, and a lower end 132 pivoted to the rocker 12 between the front and rear ends 122, 125.

Some of the disadvantages associated with the use of the aforesaid conventional scooter are as follows:

(1) The shock resulting from operation of the power driving unit 11 is relatively great, and is transmitted directly to the footrest plate 21, thereby causing discomfort to a seated person sitting on a seat 22 of the conventional scooter 1.

(2) The shock-absorbing unit 13 only absorbs the shock from the rear wheel 124, which vibrates up and down upon running over an uneven road surface.

(3) The transmission belt 146 may snap due to upward and downward vibration of the rear wheel 124 when running over an uneven road surface.

SUMMARY OF THE INVENTION

Therefore, the object of the present invention is to provide a scooter with a shock-absorbing unit that interconnects a footrest plate and a motor-mounting

seat in such a manner as to overcome the aforesaid disadvantages associated with the conventional scooter.

Accordingly, a scooter of the present invention includes: a footrest plate having a rear end; a motor-mounting seat pivoted to the rear end of the footrest plate; a rear wheel; a transmission unit; a power driving unit mounted on the motor-mounting seat for driving the rear wheel through the transmission unit; and a shock-absorbing unit pivoted to the footrest plate adjacent to the rear end of the footrest plate and pivoted to the motor-mounting seat for absorbing shock resulting from operation of the power driving unit.

BRIEF DESCRIPTION OF THE DRAWINGS

These and other features and advantages of this invention will become apparent in the following detailed description of the preferred embodiment of this invention, with reference to the accompanying drawings, in which:

Figure 1 is a schematic fragmentary side view of a conventional scooter;

Figure 2 is a schematic side view of the preferred embodiment of a scooter according to the present invention;

Figure 3 is an enlarged fragmentary side view of the preferred embodiment, illustrating how a

motor-mounting seat is connected to a footrest plate;

Figure 4 is an enlarged perspective view of the motor-mounting seat employed in the preferred embodiment; and

Figure 5 is a schematic fragmentary view illustrating how the motor-mounting seat pivots relative to the footrest plate when the scooter moves over an uneven road surface.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Referring to Figures 2, 3 and 4, the preferred embodiment of a scooter according to the present invention is shown to include a horizontal footrest plate 31, a motor-mounting seat 4, a handle unit 33, a front wheel 34, a rear wheel 62, a transmission unit 8, a power driving unit 7, and a shock-absorbing unit 5.

As illustrated, the footrest plate 31 has opposite front and rear ends. The footrest plate 31 is formed with two pivot lugs 311 adjacent to the rear end thereof.

The handle unit 33 extends upwardly from the front end of the footrest plate 31, and has a lower end disposed below the footrest plate 31.

The front wheel 34 is journalled to the lower end of the handle unit 33.

A seat 32 is disposed rearwardly of the handle unit 33, and is supported by a post that extends upwardly

from the footrest plate 31.

The motor-mounting seat 4 is pivoted to the rear end of the footrest plate 31.

A rocker 61 is disposed rearwardly of the footrest plate 31, and has a front end 611 connected to the motor-mounting seat 4 through a spindle 82, and a rear end 612 opposite to the front end 611.

The rear wheel 62 is mounted on the rear end 612 of the rocker 61 through a spindle 63.

The power driving unit 7 is mounted on the motor-mounting seat 4 for driving the rear wheel 62 through the transmission unit 8, the structure of which will be described in detail hereinafter. The power driving unit 7 has an output shaft 71.

The shock-absorbing unit 5 is pivoted to the footrest plate 31 adjacent to the rear end of the footrest plate 31 through a lower pin 52 and to the motor-mounting seat 4 through an upper pin 53 for absorbing shock resulting from operation of the power driving unit 7.

The motor-mounting seat 4 preferably includes an upper plate 42 upon which the power driving unit 7 is seated, and two side plates 43 that extend downwardly and respectively from two opposite sides of the upper plate 42 and that respectively have free ends 41 formed with aligned first pivot holes 431. A pivot shaft 40 extends through the first pivot holes 431 in the side

plates 43 of the motor-mounting seat 4 and the rear end of the footrest plate 31 so as to permit pivotal action of the motor-mounting seat 4 relative to the footrest plate 31. Furthermore, the side plates 43 of the motor-mounting seat 4 are respectively formed with aligned second pivot holes 432 that are respectively disposed above the first pivot holes 431, and aligned pin holes 433 that permit extension of the spindle 82 therethrough. Each of the pin holes 433 is disposed between the first and second pivot holes 431,432.

The shock-absorbing unit 5 preferably includes a cylinder 501 pivoted to the pivot lugs 311, and a compression spring 55 that is sleeved around the cylinder 501, and that is compressed when the motor-mounting seat 4 moves downwardly due to vibration of the power driving unit 7.

The transmission unit 8 preferably includes a first toothed wheel 81 mounted co-axially and securely on the output shaft 71 of the power driving unit 7, a second toothed wheel 83 mounted co-axially and securely on the spindle 82, a first transmission belt 85 trained on the first and second toothed wheels 81,83, a third toothed wheel 84 mounted co-axially and securely on the spindle 82 and spaced apart from the second toothed wheel 83, a fourth toothed wheel 86 fixed to the rear wheel 62 through the spindle 63 for co-rotation therewith, and a second transmission belt

87 trained on the third and fourth toothed wheels 84,86.

In use, vibration of the power driving unit 7, which is transmitted to the motor-mounting seat 4, is absorbed by the shock-absorbing unit 5. Moreover, when the scooter of the present invention runs over an uneven surface, as shown in Figure 5, the rear wheel 62 and the motor-mounting seat 4 concurrently pivot about the pivot shaft 40. The pivoting movement of the rear wheel 62 and the motor-mounting seat 4 is cushioned by the shock-absorbing unit 5. Besides, undesired snapping of the belt 87 can be avoided. As such, the aforesaid disadvantages as encountered in the prior art can be eliminated.

With this invention thus explained, it is apparent that numerous modifications and variations can be made without departing from the scope and spirit of this invention. It is therefore intended that this invention be limited only as indicated by the appended claims.